

## **REMARKS**

Reconsideration of this application as amended is respectfully requested. Claims 32-38 and 40-43 have been amended. No new matter has been added. Claims 1-43 remain pending. The remarks below in connection with claim rejection refer to the claims as amended herein.

### ***Claim Rejections - 35 U.S.C. § 102***

Claims 1-43 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,414,393 to Rose et al (“Rose”). Applicant respectfully disagrees with this reason for rejection.

Claim 1 recites, in part:

communicating the digital signal over a plurality of segments of signal lines; and transposing the signal lines between the segments of signal lines in a manner that reduces differences between interline couplings of different pairs of the signal lines.

Applicant respectfully submits that these limitations are not disclosed in Rose. The object of Rose is not to reduce *differences* between interline couplings of different pairs of signal lines, but to provide a connector *without* net crosstalk between the connector terminals (col. 2, lines 44-47; emphasis added). This object is obtained by first, second, third and fourth conductive paths between the respective input and output terminals. The crosstalk noise is eliminated by, for example, the energy induced onto the second signal line from the first signal line being approximately cancelled by coupling energy to the second signal line from a third signal line in close proximity to the second signal line and carrying a signal equal to, but opposite to, the signal in the first signal line. Therefore, in Rose, the pair formed by the first and second trace and the pair formed by the second and third trace are set to have very different crosstalk noise (in opposite polarities) so as to eliminate the crosstalk noise in the second signal line.

Furthermore, unlike the claimed invention in claim 1, the signal lines in Rose are not transposed in a manner that reduces differences between interline couplings of

different pairs of the signal lines. In Rose, traces 22 and 26, traces 24 and 28 zig-zag about each other on the board coupling energy between the two signals (col. 5, lines 27-29). Rose performs this zigzagging to allow a large amount of energy to be coupled between two signals on a small printed wiring board. It also allows the connector system (sections A, B and C) to better match the impedance of the twisted wire used to convey the signal to the connector. This reduces reflections of the signal at the connector which occur when a signal is transmitted from a medium with one impedance to a medium with a different impedance. Therefore, the traces 22 and 26, and the traces 24 and 28 are not transposed for the object of reducing differences between interline couplings of different pairs of the signal lines and are not transposed in a manner that reduces differences between interline couplings of different pairs of the signal lines.

On the contrary, because of these zigzagging, a large amount of energy is coupled between the traces in a twisted pair while a much smaller amount of energy is coupled between the traces in different twisted pairs (col. 4, lines 26-36). Even when these twisted pairs are brought closer, where 22a and 26a are twisted about each other as are conductors 24a and 28a (col. 6, lines 26-30), so that additional crosstalk from the original signal on trace 26a has been coupled onto conductor 22a from the terms  $(26 \times 28a)_m$  and  $(28 \times 26a)_n$  (col. 6, lines 59-64), the difference between the cross talk noise from trace 26a onto trace 22a and the crosstalk noise from trace 24a onto trace 22a is increased instead of decreased because these two crosstalk noise are in opposite polarity (col. 6, lines 59-64).

Therefore, Rose does not disclose or suggest transposing the signal lines between the segments of signal lines in a manner that reduces differences between interline couplings of different pairs of the signal lines, as described in claim 1. In view of this clear distinction, claim 1 is not anticipated by Rose.

Claims 2-7 depend from claim 1 and are therefore patentable for at least the reasons described in conjunction with claim 1, and also for the additional limitations recited therein.

Claim 8 recites, in part:

three or more signal lines that traverse a plurality of segments, the signal

lines being configured to carry individual signals that are encoded to reduce variations over time in a collective signal level of the individual signals;

wherein the signal lines are transposed between the segments in a manner that reduces differences between the interline coupling parameters of different pairs of the signal lines.

Applicant submits that, for at least the reasons given above in reference to claim 1, Rose does not disclose or suggest the above recited limitation, and therefore does not anticipate claim 8, nor dependent claims 9-19.

Claim 20 recites, in part:

three or more signal lines that traverse a plurality of segments, wherein there is an interline coupling parameter associated with any particular pair of signal lines that is a function of the distances between said particular pair of signal lines over all the segments; and

wherein the signal lines are transposed between the segments in a manner that reduces differences between the interline coupling parameters of different pairs of the signal lines.

Applicant submits that, for at least the reasons given above in reference to claim 1, Rose does not disclose or suggest the above recited limitation, and therefore does not anticipate claim 20, nor dependent claims 21-31.

Claim 32 recites, in part:

three or more signal lines forming at least three possible pairs of signal lines, a respective interline coupling parameter being associated with a respective pair of signal lines, at least two different pairs of signal lines among the possible pairs of signal lines being transposed at respective points in the interconnection to minimize differences in interline coupling parameters associated with respective possible pairs of signal lines

Applicant submits that, for at least the reasons given above in reference to claim 1, Rose does not disclose or suggest the above recited limitation, and therefore does not anticipate claim 32, nor dependent claims 33-43.

***In Conclusion***

Applicant respectfully submits that all pending claims are in condition for allowance. If a telephone interview would be helpful in any way, the examiner is invited to call the undersigned attorney.

A petition for a 2 (two) month extension of time is enclosed herewith.

Authorization is hereby given to charge deposit account 501914 for any fee deficiency associated with this Amendment.

Respectfully submitted,

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